

REMARKS

Claims 1-21 are now presented for examination. Claim 1 has been amended. No new matter has been added.

Claims 1, 8 and 15 are independent.

On page 2 of the Office Action, Claims 1-21 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

With regard to Claim 1, the Office Action states that the Examiner does not clearly understand how raytracing is used to render the claim a multi-dimensional image. Further, the Office Action states that there is no clear output image from the defined steps. Claim 1 has been amended to address these concerns.

Claim 1, as amended, recites a “method of rendering a multi-dimensional digital image by initializing variables of a multi-dimensional digital differential analyzer (DDA).” The initializing steps including setting up the variables of the multi-dimensional digital differential analyzer (DDA) by using multiplications only. For each axis of a multi-dimensional space, the following initializing steps are taken: setting a numerator that holds the progress within a cell along that axis; and setting a denominator that describes a size condition causing said DDA to step to a next cell. Finally, the digital image is actually, i.e., physically, rendered “based upon the initialized variables of the multi-dimensional digital differential analyser (DDA)”.

Thus, addressing the Examiner’s inquiries and comments, Claim 1 is directed to a method of “rendering” an image, where the rendering of the image is now based upon initialized

variables of the DDA. The initialization of the variables is comprised of the aforementioned steps of setting a numerator that holds the progress within a cell along that axis and setting a denominator that describes a size condition causing said DDA to step to a next cell. The rendering of the image based upon these settings is the result, or output, of this claim. Accordingly, Claim 1 is not directed simply toward a mathematical expression. Claim 1, as amended, is believed patentable and the withdrawal of the rejection of this claim is respectfully requested.

With regard to independent Claim 8, Applicant respectfully points out that this claim is directed toward an apparatus for rendering a multi-dimensional digital image using raytracing in a multi-dimensional space. The apparatus includes tangible components such as “a multi-dimensional digital differential analyzer (DDA)”, and “means for setting up variables of the DDA using multiplications only, wherein for each axis of a multi-dimensional space, a numerator holds the progress within a cell along that axis and a denominator describes a size condition causing said DDA to step to a next cell”. At a minimum, Claim 8 describes an element (DDA) and a means element (defined by corresponding structure in the specification) that *functions* to set up the DDA variables in the claimed manner. Put another way, the recited function, namely “setting up variables of the DDA” is not a mathematical expression. Thus, Claim 8 recites tangible components that produce a tangible result. For at least this reason, Claim 8 is believed patentable and the withdrawal of the rejection of this claim is earnestly solicited.

Independent Claim 15 is for a computer program product having a computer readable medium with a computer program recorded thereon for rendering a multi-dimensional digital image using raytracing in a multi-dimensional space. The computer program product, a tangible medium, contains a computer program for *“setting up variables* of the DDA using

multiplications only, wherein for each axis of said multi-dimensional space, a numerator holds the progress within a cell along that axis and a denominator describes a size condition causing said DDA to step to a next cell" (emphasis added). As such and at the very least, as described above with respect to Claim 8, *“setting up variables of the DDA”* is not a mathematical expression and whose output ultimately is a rendered image. Thus, Claim 15 also recites a tangible component that produces a tangible result in the claimed manner. Applicant respectfully requests that the rejection to Claim 15 be withdrawn.

Thus, based upon the above, Applicant believes that the rejections to independent Claims 1, 8 and 15 have been overcome. Claims 2-7, 9-14 and 16-21 are each dependent either directly or indirectly from one or another of independent Claims 1, 8 or 15. Applicant believes these claims, due to their dependency upon their respective independent claims, which are discussed above, are also allowable. However, the individual reconsideration of the patentability of each claim on its own merits is respectfully requested.

For all of the above reasons, the claim objections are believed to have been overcome placing Claims 1-21 in condition for allowance, and reconsideration and allowance thereof is respectfully requested.

The Examiner is encouraged to telephone the undersigned to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

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